Montana Forest Health Highlights 2020

Forest Pest Management Program

BY THE NUMBERS
Acres with damage
(severity-weighted acres)

Douglas-fir Tussock Moth
53,980
(53,362)

Western Spruce Budworm
77,617
(64,648)

Douglas-fir Beetle
36,298
(7,008)

Mountain Pine Beetle
12,636
(3,097)

Ash trees heavily defoliated by fall cankerworm

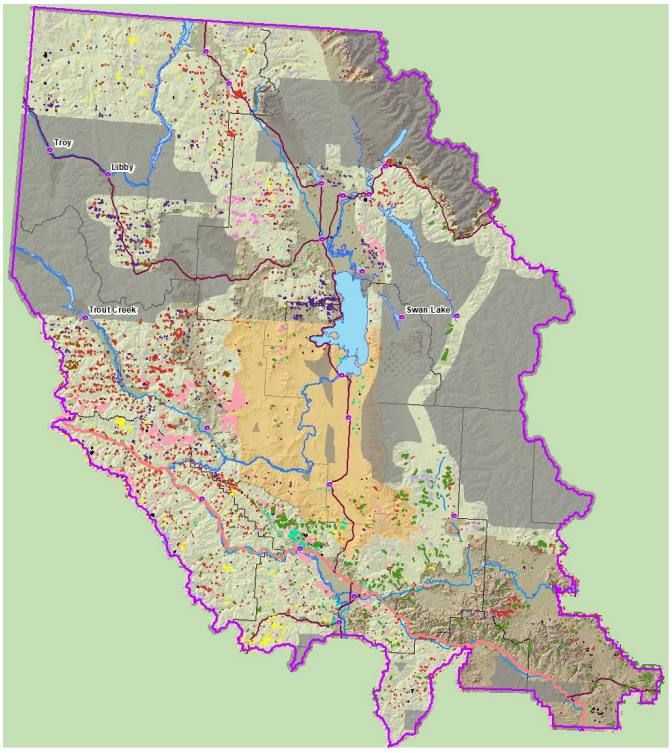
Much of Montana's forest insect and disease data is collected by the USFS Forest Health Protection Aerial Detection Survey (ADS) Program, however, surveys were drastically limited by COVID-19 in 2020. Surveys covered approximately 13.5 million acres which represents half of the typical coverage. Ground surveys and observations further contributed to our understanding of Montana forest conditions in 2020.

The state is divided into four reporting zones generally based on geographic boundaries: Northeast (NE), Southeast (SE), Northwest (NW), and Southwest (SW). The Continental Divide is commonly designated as an ecological boundary and was used to divide the state east-west, albeit in unbalanced halves. The USDA Forest Service (USFS) divides National Forests into seven forests, some of which are non-contiguous, and the zones were designed to encompass Forests in their entirety. The zones also include seven reservations and three State Forests.

The actual amount of mortality from tree diseases, dwarf mistletoes, and white pine blister rust are difficult to identify from the air, thus these agents are generally underestimated with ADS. Defoliating insects such as western spruce budworm, Douglas-fir tussock moth and western hemlock looper are also difficult to distinguish from the air and oftentimes co-occur in a stand.

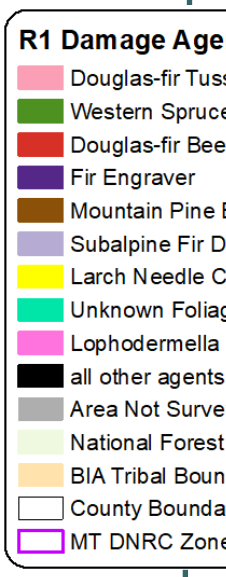
Damage agents are not always contiguous and surveyors may collect data with slightly different methods. To account for this potential discrepancy, severity-weighting consolidates all damage into a single high severity category referenced as "severity-weighted acres" (SWA).

Northwest Zone

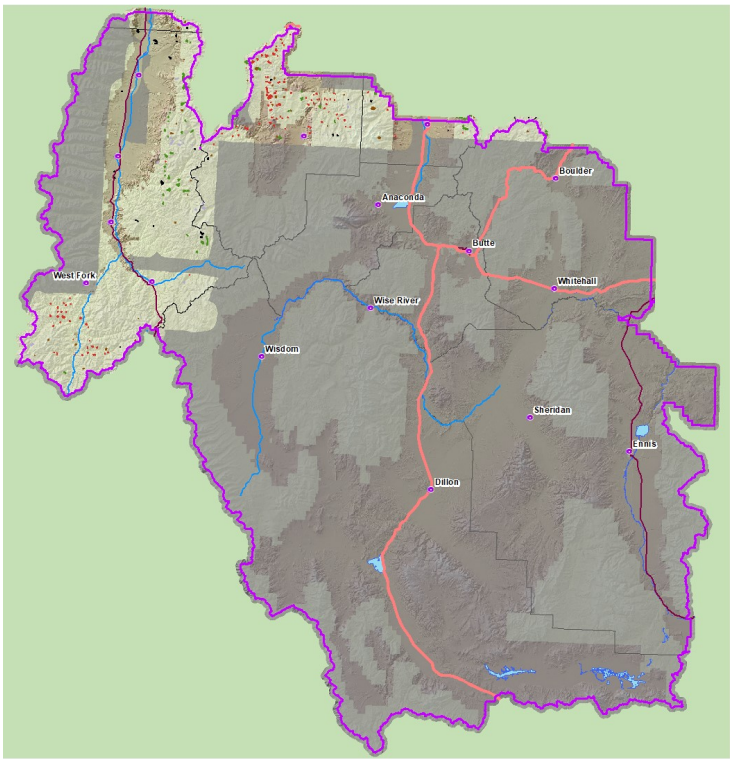


Multiple wind events in the Northwest Zone occurred in the fall, winter and spring. These events blew down large diameter trees and ultimately created habitat for bark beetles, particularly Douglas-fir beetle. Douglas-fir beetle was on the rise throughout the host range and attacked trees on 28,851 (5,966) acres in the NW Zone. An outbreak of Douglas-fir tussock moth continued to defoliate Douglas-fir on 53,778 (53,204) acres in the vicinity of Plains and Trout Creek, whereas the outbreak largely collapsed in other previously affected areas. WSBW decreased from previous years and was detected on 43,399 (37,504) acres along the Clark Fork and Blackfoot River corridors.

Douglas-fir blowdown



Southwest Zone



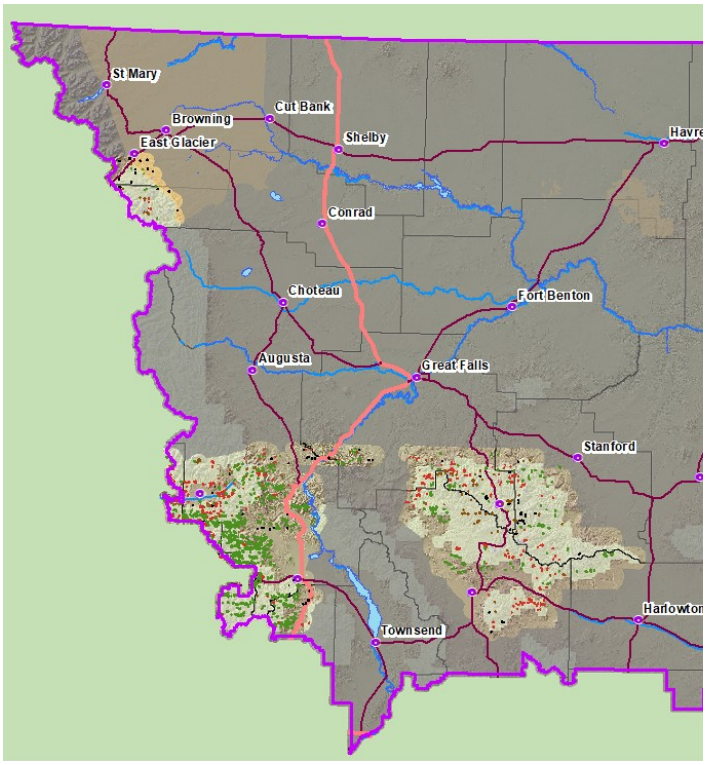
Less than a quarter of the forested area was surveyed in the SW Zone in 2020. Douglas-fir beetle activity was dispersed across 1,760 (234) acres. Western spruce budworm activity decreased from previous years and was detected on 2,290 (1,823) acres.

Douglas-fir beetle boring dust and exposed gallery

Northeast Zone

Only the western half of the Northeast Zone was flown for aerial detection survey in 2020. Western spruce budworm activity decreased from previous years and was detected on 31,928 (25,312) acres, particularly near Helena . Douglas-fir beetle slightly increased and was detected on 5,686 (808) acres in the Helena National Forest. Spots of western spruce budworm and Douglas-fir beetle were also detected near East Glacier.

Western spruce budworm



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Southeast Zone

The Southeast Zone was not flown for aerial detection survey in 2020 and data is limited to two ground surveys. Ash draws between Baker and Wibaux were severely defoliated by fall cankerworm for at least the second consecutive year. Pine tussock moth severely defoliated pine trees in Greycliff throughout the visible entirety of a ponderosa pine stand south of the interstate.

Pine tussock moth activity in ponderosa pine

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Douglas-fir Tussock Moth Surveys

Egg mass surveys were conducted on 44 sites throughout the greater Missoula Valley by USDA Forest Service personnel. The number of viable egg masses was negligible and the survey was consequently suspended.

Larval sampling was conducted by Montana DNRC personnel in Missoula to assess presence of a lethal virus, NPV. As the season progressed, the majority of larvae present were infected with NPV suggesting that the population would soon subside in the surveyed areas.

Douglas-fir tussock moth damage

Invasive Species

Baited traps were set by interagency personnel to detect potential introductions of the non-native invasive gypsy moth. No gypsy moths were captured in 2020. The MT Department of Agriculture conducted a follow-up delimitation survey in Wayfarer's State Park near a positive catch from 2019 and no additional gypsy moths were caught, suggesting that a population did not establish.

A destructive sampling effort was conducted in Bozeman to detect emerald ash borer larvae developing in ash trees. As of 2020, emerald as borer has not been detected in Montana.